

## DIRECT METHANOL FUEL CELL INCLUDING A WATER RECOVERY AND RE-CIRCULATION SYSTEM AND METHOD OF FABRICATION

### Abstract of the Disclosure

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A fuel cell device and method of forming the fuel cell device including a base portion having a major surface. At least one fuel cell membrane electrode assembly is formed on the major surface of the base portion. A water recovery and recirculation system is defined in a cap portion and in communication with a water recovery and recirculation channel defined in the base portion. The water recovery and recirculating system is formed to collect reaction water from the cathode side of the at least one fuel cell membrane electrode assembly for recirculation to the anode side of the fuel cell membrane electrode assembly. An exhaust separation chamber is defined in the base portion and communicating with the fuel cell membrane electrode assembly for the exhausting of generated gases.